

## PATENT ABSTRACTS OF JAPAN

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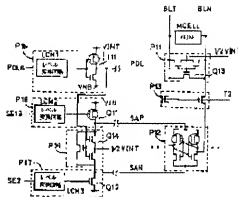
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## (54) SEMICONDUCTOR MEMORY

(57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a semiconductor memory that speed of amplification of a sense amplifier, speed of pre-charge operation of a bit line and a sense amplifier section can be increased even if voltage of a semiconductor memory is made lower.

**SOLUTION:** A transistor Q13 of bit line pre-charge circuit P11, a transistor Q14 of a sense amplifier driving line precharge circuit 14, a transistor Q12 driving a sense amplifier driving line SAN are constituted of transistors having a lower threshold value than a normal value, at the time of activation of a sense amplifier, negative voltage is applied to a transistor Q11 driving a circuit P11, a circuit P14, and the sense amplifier driving line SAP, and internal power source voltage is applied to the transistor Q12 driving SAN, and speed of amplification of a sense amplifier is increased. At the time of non-activation of a sense amplifier, internal power source voltage is applied to the circuit P11, the circuit P14, and the Q11 driving SAP, and negative voltage is applied to the Q12 driving the SAN.



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